

# RESEARCH

**L**ANDSCAPE ARCHITECTURE, in partnership with the web-based newsletter and daily blog *Research Design Connections*, uses this column to report current research of interest to landscape architects from a wide array of disciplines. We welcome your comments, suggestions about future topics, and studies you have encountered in your own practice.

## What's a Street Tree Worth?

**G**EOFFREY DONOVAN and David Butry answer that question, focusing on the influence of street trees—trees planted in the strip of land between the sidewalk and the street—on the sales price and time on the market of homes, and moving beyond previous research valuing urban trees more generally. The specific evaluations reported need to be adjusted for regional and market conditions—data was collected in Portland, Oregon, several years ago—but even without those adjustments, Donovan and Butry's calculations are useful.

Data was collected only on the east side of Portland because the general layout of the west side of Portland makes it more difficult to differentiate publicly owned street trees and privately owned front yard trees. The study focused on 2,608 single-family homes sold in the test area between July 1, 2006, and April 26, 2007.

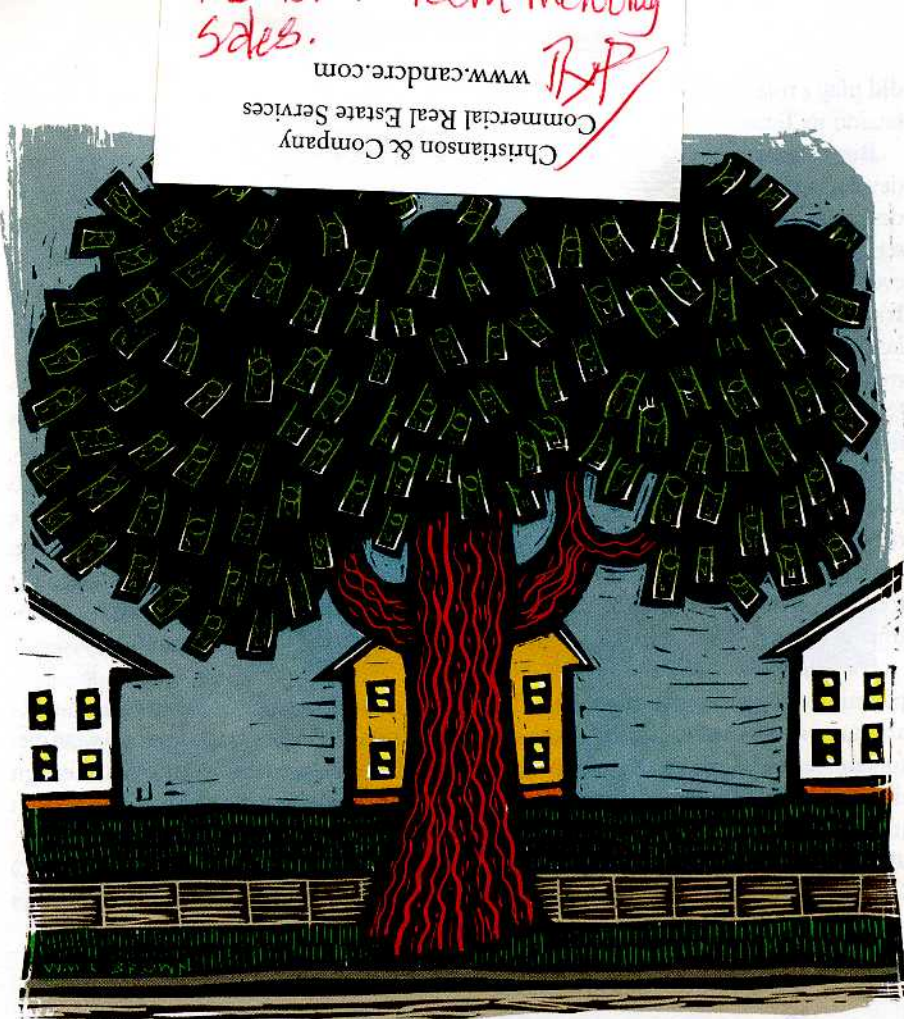
Each of the homes was visited and information was collected about the street trees present. Researchers recorded the types of trees in place (flowering, conifer, and so on), visible evidence of disease, and whether trees had been trimmed to keep them from interfering with power lines. Other data gathered included distance from a major (through) street, presence of pavement damage, and a subjective, curbside evaluation of the apparent condition of the home (poor, average, or good).

Aerial photographs were used to determine, for each property sold, the crown

area of trees in front of the home (excluding the street trees) and the crown area of street trees within 100 feet of the middle of each home's front property line. The percentage of tree cover on each lot overall was also calculated, using a geographic information system, as were distance to and size of the nearest park.

The county assessor's office supplied information about the houses sold (such as size and number of bedrooms), as well as sale date and price.

Based on the data, street trees have value not only for the property that they are directly in front of but also for neighboring houses. A street tree adds \$8,870 to the sales price of the property it's in front of, while reducing that home's time on the market by 1.7 days, on average. Houses generally had .558 street trees in front of them and 904 square feet of street tree canopy cover within 100 feet. At the time this study was conducted, homes in east Portland were on the market for 71 days,



## RESEARCH DESIGN CONNECTIONS

Several recent articles discussing the interplay of natural and man-made environments have implications for the practice of landscape architecture. **By Sally Augustin and Jean Marie Cackowski-Campbell, ASLA**



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on average, and had a median sales price of \$259,000.

The researchers determined that the \$8,870 that a street tree contributed to the value of a home was “equivalent to adding 129 finished square feet to a home.” The researchers also determined that “on average, there are 7.6 houses within 100 feet of a street tree. Therefore, a tree with 312 square feet of canopy cover [the average size for a single street tree in the sample] adds, on average, \$12,828 to the value of neighboring houses.”

The significant contribution of street trees to the overall value of homes in a neighborhood raises difficult questions about the responsibility of caring for those trees. “If the provision and maintenance of street trees is left to individual home owners, as it is now, they will likely underinvest in street trees from a societal perspective,” say the study’s authors. “A number of policy remedies are possible. The city of Portland could pay for the planting of street trees—currently, [it does] not. Alternatively, the city could provide home owners with a property-tax break depending on the number and size of street trees they are responsible for.”

### Source

■ “Trees in the City: Valuing Trees in Portland, Oregon,” by Geoffrey Donovan and David Butry; *Landscape and Urban Planning*, vol. 94, 2010.

## Trees in Shopping Areas Add Value

**S**HOULD SHOP OWNERS support planting vegetation in commercial districts? Work by Yannick Joye and his colleagues indicate that the answer to this question is “Yes!” They integrate the concepts of biophilic and retail design, weighing the benefits of using vegetation in commercial settings against the related costs. They examine this theory in two

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ways: empirically, through survey-based data analysis, and conceptually, through literature review on both biophilic and retail design.



The conceptual (literature) review begins by introducing evidence that visiting urban shopping areas is often stressful or tiring. However, say the authors, “there are clear reasons to assume that biophilic store design—greenery in particular—can mitigate negative states like stress.” Biophilic architecture (or design) taps the positive effects of nature in architecture, either by including real plants in architectural environments or by symbolically referring to nature in architectural design.

The authors also found pronounced restorative effects on sales personnel. “Stress reduction among merchants and employees can, for example, lead to more positively toned moods,” says the study. “This, in turn, can translate into increased



helpfulness and friendliness toward customers." Research published by Buber and colleagues in 2007 indicates that plants in malls lead people to explore the mall more thoroughly and are linked to more interactions with other people in the mall.

Kathleen Wolf (the fourth author of this study) has independently collected information about the influences of urban greenery on commerce. Her data is the focus of the empirical section of this paper. In her work, she writes, "Preferences, perceptions, and behaviors were assessed and associated with trees across retail districts and extended streetscapes." Wolf investigated the effects of vegetation on commerce in cities of varying sizes (from small cities with populations from 10,000 to 20,000 to large cities of more than 250,000 inhabitants) and in various sorts of retail environments, from urban high-speed streets to suburban strip malls.

Wolf used surveys to collect responses to, she describes, "Retail streetscape scenarios...that varied with respect to the quantity, location, and complexity of vegetation. Other scene content (e.g., build-

Judgments of products...  
[and] merchants...were  
more positive in spaces  
with trees than those  
without them.

ing age, utility lines, and so on) was controlled to avoid distraction that could bias consumer responses."

Wolf's findings are clear and consistent. Commercial areas with trees were rated as having higher visual quality than those without trees. In addition, judgments of products, product value, product quality, merchants, and merchant responsiveness were more positive in spaces with trees than those without them. "It seems that favorable expectations of shopping experiences are initiated long before a consumer enters a shop," asserts the study. Individuals also indicate more of a willingness to travel to shopping areas with trees, so trees expand trade area radius. In addition, writes Wolf, "Respondents reported that they would stay longer once there and indicated that

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they would visit a vegetated business district more frequently.” And, “a relatively higher mean price acceptance [was] associated with districts in which trees are present.”

The evidence is clear: Trees could be a shopkeeper’s best friends.

### Source

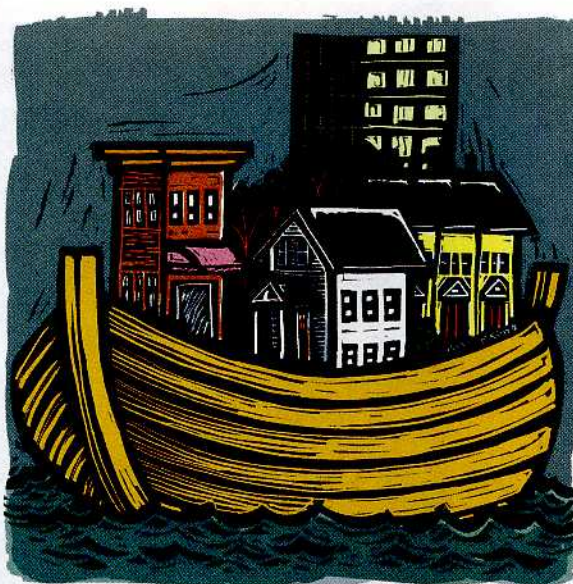
■ “The Effects of Urban Retail Greenery on Consumer Experience: Reviewing the Evidence from a Restorative Perspective,” by Yannick Joye, Kim Willems, Malaika Brengman, and Kathleen Wolf; *Urban Forestry and Urban Greening*, vol. 9, 2010.

## New Urbanism and Disaster Planning

**M**ARK STEVENS and his colleagues set out to discover the difference in safe-

ty from natural disaster between typical and New Urbanist communities.

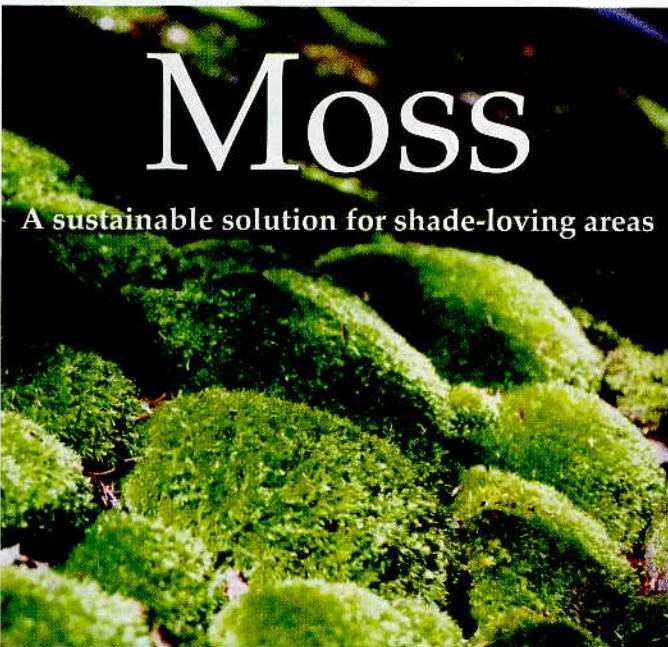
New Urbanist developments are relatively high density, by design. Those higher density levels can be problematic when New Urbanist projects are located in areas exposed to natural hazards.



Stevens and his coauthors compared 33 sets of New Urbanist and more conventional developments across the United States, all of which were located in floodplains. The authors then investigated if planners were more likely to incorporate hazard mitigation techniques into New Urbanist developments than into conventional developments.

The authors describe New Urbanist design as “based on a set of design principles that are intended to foster more intentional delineation of open space, a better mixture of land uses built at relatively high densities, and pedestrian-oriented transportation networks.”

Levels of local government assistance to each developer type vary, and those differing levels of support play a key role in determining the extent to which hazard mitigation tools were employed. “We find that New Urbanist design does not appear to make a difference in the use of hazard



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